

4a. *Theronia bicincta bicincta* (Cresson)

Pimpla bicincta Cresson, 1865, Proc. Ent. Soc. Philadelphia, vol. 4, p. 38; ♀.
Type: ♀, Cuba (Philadelphia).

First three tergites reddish brown, the apical $0.4 \pm$ of the first two tergites yellow; hind coxa ferruginous, above with a yellow or yellowish area.

Specimens (5♂, 3♀): From Cuba.

4b. *Theronia bicincta floridana*, new subspecies

First three tergites light reddish brown, their apical $0.6 \pm$ yellow; hind coxa ferruginous, its upper part yellow.

Type: ♀, Tarpon Springs, Fla., Mar. 21, 1950, H. Townes (Washington, USNM 63716).

Paratypes (26♂, 20♀): From Florida (Anastasia Island near St. Augustine, Archbold Biological Station at Lake Placid, Brooksville, Elfers, Fort Ogden, Gainesville, La Belle, Larkins in Dade Co., Matheson Hammock near Miami, Mayport, Paradise Key, South Miami, Tarpon Springs, and Yankeetown); and Georgia (St. Simons Island).

Most of the above specimens were taken in March and April. A few were taken in December, January, and February.

The only reared material of this species is a series of four dwarf males reared from *Tromatobia rufopectus* cocoons in the egg sac of a spider (*Argiope aurantia*) at Gainesville, Fla., February 1925, by W. A. Murrill.

This subspecies occurs in Florida and the subtropical part of Georgia.

2. Genus *Delomerista*

FIGURE 300,a

Delomerista Foerster, 1868, Verh. Naturh. Ver. Rheinlande, vol. 25, p. 164. Type: *Pimpla mandibularis* Gravenhorst; included and designated by Schmiedeknecht, 1888.

Front wing 5 to 10.5 mm. long; body form rather slender; apex of clypeus with a median notch, without a median point; propodeal carinae rather weak; tarsal claws simple, of moderate size, without an enlarged bristle with a spatulate tip; nervellus broken at or below the middle; abdomen strongly mat, its hairs rather dense, ovipositor moderately compressed, its apex not sinuate, its sheath usually about 0.45 as long as front wing but of variable length.

THE GENUS *DELOMERISTA*

By LUELLA M. WALKLEY²

² Entomology Research Division, Agricultural Research Service, U. S. Department of Agriculture.

Fourteen species have been described in the genus *Delomerista* Foerster, a Holarctic genus of northern distribution. Three of them occur in the Nearctic region. In this paper three new Nearctic species are described and *D. diprionis*, the commonest Nearctic species, becomes a synonym.

Delomerista species seem to be predominantly parasitic on sawflies of the family Diprionidae. However, there are a number of early references³ to Nearctic species reared from lepidopterous hosts and even from *Mononychus vulpeculus* (Fabricius), a weevil. A European species, *Delomerista pfankuchi*, has also been recorded from a species of Lepidoptera, *Gelechia tragicella* Heyden.⁴ It is unwise to disregard these records or to assume that they are wrong, since in the Nearctic region *diprionis* is the only species of *Delomerista* for which there are authentic host records of recent date.

Because of insufficient biological data and especially the lack of host records for the specimens available for study, several taxonomic problems remain unsolved. These problems will be discussed further under the species involved.

I wish to thank the following for the loan of material: G. Stuart Walley, and Lois Smith (formerly of University of Wisconsin), Division of Entomology, Canadian Department of Agriculture, Ottawa, Ont.; H. K. Townes, University of Michigan, Ann Arbor, Mich.; and R. C. Brown (formerly of Northeast Forest Insects Laboratory), New Haven, Conn. I am grateful to J. F. Perkins, British Museum (Natural History), London, for the gift of several *Delomerista* specimens.

The figures were drawn by Arthur D. Cushman.

Delomerista is one of the many genera established by Foerster without included species. In his handwritten manuscript he designated *Pimpla mandibularis* Gravenhorst as type of *Delomerista*. For some reason, perhaps because many of the species he had selected as types of his new genera were undescribed, he did not include the type species when he had the manuscript published. It is fortunate that the present genotype is Foerster's unpublished selection.

Foerster included *Delomerista* in his family Pimplidae. Later it was usually considered a subgenus or synonym of *Pimpla* and placed in the Pimplini. Then Hellén (1915, Acta Soc. Fauna Flora Fennica, vol. 40, pt. 6, pp. 15-17 and 48) placed the genus in the "subtribe Delomeristini, tribe Pimplides." More recently the genus has been placed in the Ephialtini⁵ and considered closely related to *Perithous*.

³ Riley and Howard, 1891, Insect life, vol. 3, p. 461.—Dimmock, 1898, Proc. Ent. Soc. Washington, vol. 4, p. 154.

⁴ Schutze and Roman, 1931, Isis budissima, vol. 12, p. 5.

⁵ This is the same as Pimplini of H. K. Townes. While I agree that priority strictly followed would enable each of us to solve most of the nomenclatural problems which arise, I am following the rules, opinions, etc., of the International Commission on Zoological Nomenclature.

My inclination is to follow Hellén and place the genus in the tribe Delomeristini or in the Theroniini of Townes. Generic relationships will be more clear when the larvae and biology of the species are better known.

This genus comprises species that are very similar in general appearance. The North American species can be placed in two more or less natural groups which I call the NOVITA group and the JAPONICA group. The shape of the apical portion of the ovipositor is the single character used to distinguish the two. It may be that the members of the JAPONICA group are parasitic only on sawflies and those of the NOVITA group parasitic on Lepidoptera or other insects in certain ecological niches.

Although the black color and habitus of the species of this genus are typical of the Ephialtini, the sculpture of the abdomen and the presence of an areola and petiolar area on the propodeum will quickly identify them. The abdomen of *Delomerista* species is usually finely granular, shagreened or coriaceous with very fine shallow scattered punctures, and sometimes more or less polished. Species of ephialtine genera have the abdomen more polished with comparatively large, coarse punctures. The *Delomerista* females can be further distinguished by the pale malar space and mandibles. They can also be separated from all ephialtine species, except those of *Perithous*, by the complete lack of a large basal tooth on the claws.

The compressed ovipositor is also found in some other ephialtine species, but in the Nearctic region only a few species of *Scambus* have it as compressed as in *Delomerista*.

The males of the genus, except those of *texana* (Cresson), are not included in the specific descriptions. They have been placed only in species groups. Genitalic dissections failed to show characters for further separation.

It is entirely possible that there are additional species in the material studied, but until more specimens and further biological facts are available the variations can only be noted.

Keys to the Nearctic species of *Delomerista*

MALES

1. Clypeus convex; abdominal tergites finely granular in sculpture.
 1. *texana* (Cresson)
- Clypeus not convex; abdominal tergites beyond the third segment coriaceous 2
2. Hind tibia fully as long as femur and trochanters combined. NOVITA GROUP
- Hind tibia not as long as femur and trochanters combined. JAPONICA GROUP

FEMALES

1. Clypeus convex; malar space about as long as, or longer than, basal width of mandible; temples, viewed dorsally, as long as, or longer than eyes; wings usually dark brown. **1. texana** (Cresson)
 Clypeus more or less flat; malar space definitely shorter than basal width of mandible; temples, viewed dorsally, not as long as eyes; wings light brown or hyaline **2**
2. Ovipositor with a strong dorsal curve apically (figs. 313,k,m). **JAPONICA GROUP**. **3**
 Ovipositor without a strong dorsal curve apically (figs. 313,l,o,p). **NOVITA GROUP**. **4**
3. Ovipositor heavy, depth near apex greater than width of front tibia at its widest (fig. 313,m) **2. gelida**, new species
 Ovipositor not heavy, depth near apex less than width of front tibia at its widest (fig. 313,k) **3. japonica** Cushman
4. Ovipositor point ⁶ very gradually narrowed, tenuous, at least five or six times as long as its depth; apical third or more of hind femur fuscous or blackish. **4. lepteces**, new species
 Ovipositor point much less gradually narrowed, not more than four times as long as its depth; hind femur usually with much less than apical third fuscous or blackish (when, as in some specimens of *novita*, approximately the apical third of hind femur is fuscous, then the white area of tibia is much more extensive) **5**
5. Hind tibia and tarsus blackish, sometimes tibia pale at extreme base, tarsus entirely dark brown or blackish **5. borealis**, new species
 Hind tibia with pale annulus at base and ventrally with varying amount of pale color extending toward apex; tarsus with at least first segment pale at base **6**
6. All abdominal segments more or less finely punctate **6. pfankuchi** (Brauns)
 Abdominal segments 1-3 more or less coriaceous or finely granular. **7. novita** (Cresson)

1. Delomerista texana (Cresson)

FIGURES 313,n; 316,i

Pimpla texana Cresson, 1870, Trans. Amer. Ent. Soc., vol. 3, p. 145; ♀. Type: ♀, Texas (Philadelphia).

Pimpla laevifrons Thomson, 1877, Opuscula entomologica, fasc. 8, p. 750.— Townes, 1944, Mem. Amer. Ent. Soc., no. 2, pp. 48-49; ♂, ♀. Types: ♂, ♀, Sweden (Lund).

Delomerista texana (Cresson) Cushman, 1922, Proc. U. S. Nat. Mus., vol. 61, art. 8, p. 11.

The characters that quickly separate this species from all others in the **JAPONICA** group are the long malar space, convex clypeus and temples, and the finely granular sculpture of the abdominal tergites.

Further characters noted are: Small shallow punctures on face separated by one to three times their diameter with none or very few on central area; ovipositor sheaths varying in length from a little more than half to a little more than two-thirds the length of abdomen.

⁶ That apical portion of ovipositor beginning where the depth of ovipositor changes its dimension and narrows to apex, or slightly enlarges and then narrows to apex.

The male may be further identified by the black or blackish coxae and trochanters, black face with pale clypeus and pale or white triangular area on each side of face. In one specimen from Great Whale River, Que., this area is so dark as to be barely discernible.

Females vary in length from 7.5 mm. to 10.5 mm., males from 5.5 mm. to 9.7 mm. The Nearctic specimens generally have darker wings, blacker hind tibiae and almost buccate temples. However, a European specimen from "Abisko, Lapland, North Sweden," sent to me by J. F. Perkins of the British Museum (Natural History) has darker wings and hind tibiae than a specimen taken at the same locality earlier by J. R. Vockeroth, Ottawa, Ont., while a male and female from Chesterfield, Northwest Territories, both have hind tibiae the same reddish color as the femora and have the hind tarsi only slightly darker. The wings, too, are lighter.

Distribution: Europe; Alaska; Canada: Quebec (Fort Chimo and Great Whale River), Northwest Territories; United States: New Hampshire, Maine.

Host: Unknown.

2. *Delomerista gelida* Walkley, new species

FIGURES 313,m; 316,j

This species has been misidentified in collections as *D. texana*. It can be readily distinguished, however, by the difference in abdominal sculpture (the abdomen being mostly coriaceous rather than granular), by the more robust ovipositor, shorter malar space, and flat clypeus.

Holotype female: Body, 10 mm.; ovipositor sheaths, 4.3 mm.

Head: Finely punctate; face with the punctures separated usually by a distance less than, and never more than, the diameter of the punctures; malar space not more than half basal width of mandibles; temples somewhat convex but not as long as the eyes; clypeus flat, emarginate; antenna with 32 segments.

Thorax: Length to width as 4 to 3; sternauli reaching only to disk, mesopleurum finely, sparsely punctate, polished; areola of propodeum only a little longer than wide; costulae not complete; metapleuron smooth and finely, sparsely punctate; dorsum of propodeum somewhat reticulate, rough only in comparison with metapleuron. Wings with slight brownish tinge; ramellus short, with color line extending well into discocubital cell; tegulae largely brownish.

Abdomen: Length nearly 7 mm.; first segment dorsally rugose, except on disk which is more coriaceous; second tergite somewhat granular in sculpture and about $\frac{1}{2}$ wider at apex than its length; remaining segments mostly coriaceous; silvery pubescence of abdominal tergites longer laterally than dorsally; blackish chitinous areas on second abdominal sternite at least twice as long as wide, those

on remaining sternites less than twice as long as wide; ovipositor deeper than that of any other *Delomerista* species, its apex abruptly curved dorsally; sheaths a little less than two-thirds length of abdomen.

Black except the following: All femora, middle and hind coxae, tegulae, tips of ovipositor sheaths, mandibles (except teeth), clypeus, malar space, thin line at apex of segments 4-7, brownish or reddish brown; and mandibles, malar space, inner surfaces of front femora and tibiae, apices of middle femora, dorsolateral corner of pronotum, and annulus at base of hind tibia, pale or whitish.

Described from holotype female in U. S. National Museum Collection under Type No. 64090.

Type locality: Cameron Bay, Great Bear Lake, N. W. T. The two paratypes are from Waskesiu, Sask., and Great Whale River, Que. Paratypes are in the collection of H. K. Townes and in the Canadian National Collection.

Further distribution: Alaska; Canada: Alberta, British Columbia, Northwest Territories, Ontario, Quebec; United States: Arizona, California, Colorado, New York, Pennsylvania.

Host: Unknown.

Variations: Ovipositor depth from barely wider to more than $\frac{1}{2}$ wider than widest part of front tibia; length of ovipositor sheaths from $\frac{5}{8}$ to nearly $\frac{7}{8}$ length of abdomen; antennal segments varying in number from 28 to 32; front coxae blackish or reddish; outside of front femora, and front and middle tibiae, from brownish or reddish brown to dark brown or blackish; hind tibiae black, except for pale basal annulus, to blackish with pale area extending apically on ventral side.

While I believe all these specimens are the same species, I have hesitated to consider them all paratypes without more knowledge of the biology of the species.

3. *Delomerista japonica* Cushman

FIGURE 313,k

Delomerista japonica Cushman, 1937, Ins. Matsumurana, vol. 12, pp. 35-36; ♂, ♀. Type: ♀, Nagawa-Mura, Nagano-Ken, Japan (Washington).

Delomerista diprionis Cushman, 1939, Journ. Washington Acad. Sci., vol. 29, pp. 398-400; ♂, ♀. New synonymy. Type: ♀, Oakville, Ontario, Canada (Washington).

The original descriptions are adequate. The differences in the two descriptions are merely intraspecific and in the additional material at hand those differences can be found in specimens from either geographic region. The species varies in length from 5.5 mm. to 11 mm.

It is possible that *japonica* comprises two incipient species: one parasitizing *Diprion* spp. and the other *Neodiprion* spp. The differ-

ences are by no means clear-cut. Certainly those specimens reared from *N. tsugae*, and often those from *N. abietis*, can be recognized in Nearctic material of *japonica*. In this connection the several hundred reared specimens from Canada helped immeasurably. The specimens reared from *N. tsugae* not only are usually smaller but have an ovipositor that often appears more delicate, with the apical ridges less apparent, and is somewhat paler in color. Other differences often noted are: Face longer in proportion to width and sometimes less punctate in central area; wing veins as well as ovipositor generally paler in color; hind tibiae usually with more white. It must be stressed, however, that any of the above variations can be found in specimens reared from *Diprion* spp. but with less frequency. Here, again, the percentage of occurrence might be greater if a larger number of specimens reared from *Diprion* spp. were available.

A biological study involving the rearing of this species from the several hosts belonging to one genus and then rearing the progeny from hosts belonging to the other genus might solve the taxonomic problem. Until such a study is made, it seems best to assume that there is only one species with host-associated variation.

R. A. Cushman, in his description of *japonica*, mentioned a possible relationship to *D. laevis* (Gravenhorst) which he knew only by description but which he considered distinct. The two specimens of *laevis* I have seen (one identified by G. Heinrich and the other by J. F. Perkins) differ from *japonica* in possessing a much longer ovipositor (about three-fourths the length of the abdomen), and almost unicolorous reddish legs, with only the hind tibiae and tarsi and last tarsal segment of middle and front legs slightly darker.

Distribution: Japan; Alaska; Canada: Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia, Northwest Territories, Ontario, Quebec, Yukon Territory; United States: California (mountainous areas), Connecticut, Idaho, Maine, Michigan, Minnesota, New Hampshire, New Jersey (Moorestown), New York, North Carolina (mountainous areas), Oregon, Vermont, Washington, Wisconsin.

Hosts: *Diprion nipponicus* Rohwer (in Japan); *D. hercyniae* (Hartig); *D. similis* (Hartig); *D. frutetorum* (Fabricius); *Neodiprion abietis* (Harris) complex; *N. tsugae* Middleton; *Neodiprion* sp. or spp.

4. *Delomerista lepteces* Walkley, new species

FIGURE 313,1

This species belongs to the *NOVITA* group and is easily distinguished from other species in the group by the very slender ovipositor with its tenuous apical portion. This character is the reason for the name *lepteces*. The blackish apical third of the hind femur is another iden-

tifying character. The holotype and two paratype females are the only specimens of this species known to me.

Holotype female: Body, 7.8 mm.; ovipositor sheaths, about 4 mm.

Head: Polished, finely punctate, face a little more coarsely so; eyes slightly convergent anteriorly; malar space about one-half as long as basal width of mandible; face one and one-half times as wide as long; antenna with 31 segments.

Thorax: Fully twice as long as deep; mesoscutum finely punctate, polished; sternaulus evident only anteriorly; mesopleurum more finely and sparsely punctate, punctures becoming obsolete posteriorly; dorsal face of propodeum a little longer than posterior face; areola a little longer than wide; pubescence of propodeum sparse and becoming longer laterally, center of areola lacking pubescence; wings hyaline and slightly infumate, veins dark, stigma black except for white spot at extreme base. Hind legs with tibia about as long as femur and trochanters combined. (All of left front leg except coxa and first trochanter missing in type specimen.)

Abdomen: Polished, about one and one-half times as long as head and thorax combined; first three tergites more or less granular, remaining tergites very finely coriaceous; pubescence of tergites laterally more sparse and only slightly longer; ovipositor sheaths about three-fourths length of abdomen; ovipositor very slender and apical fourth attenuated to a fine point.

Color: Black, except clypeus, middle and hind coxae, basal two-thirds of hind femora, middle femora (dusky apically) reddish; apices of front coxae, apices and inner face of front first trochanters, inner face of front femora, front tibiae, apical spots on outer face of front femora, inner and outer faces of middle femora, outer and front faces of middle tibiae to within $\frac{1}{4}$ distance to apex, anterior half of tegula and spot on pronotum just in front of tegula, mandibles except teeth, malar space, and base of hind wing, whitish; maxillary and labial palpi brownish; pale area on inner face of hind tibiae barely visible.

Variations: Antenna 31 to 32 segmented; extent of white on inner face of hind tibia varying from the barely visible streak of type specimen and from a spot near center, to a central streak covering nearly half of length to apex; punctuation of face varying in degree. The clypeus of the type specimen is bent inward apically—probably an abnormality.

Described from holotype female in the U. S. National Museum Collection under Type No. 21395.

Type locality: Mount McKinley, Alaska, collected at an altitude of 1,600 ft., Aug. 6, 1954, by David Townes.

Paratype localities: Laurentide Park, Mare du Sault, Montmorency

Co., Que., July 12, 1954, altitude 2,540 ft., collected by A. Klots, F. and P. Rindge; Poudre Lake, Colo., Rocky Mountain National Park, 11,000 ft., Aug. 12, 1948, collected by H., G., and D. Townes. These paratypes belong to the Townes Collection.

Host: Unknown.

5. *Delomerista borealis* Walkley, new species

This species belongs in the *NOVITA* group and can be separated from *D. novita* (Cresson) by its color pattern: Black tegulae, black hind tibiae and tarsi, and fuscous palpi.

Holotype female: Body, 13 mm.; ovipositor sheaths, 6.5 mm.

Head: Eyes almost parallel; face 1.75 times as wide as long; antenna 31-segmented; malar space a little more than one-third basal width of mandible; very finely, sparsely punctate except face which is more coarsely punctate with punctures of central area separated by about twice their diameter and by a little less than their diameter in adjoining area.

Thorax: Width to length as 3.5 to 5; mesopleurum finely punctate, especially ventroanteriorly, becoming less so dorsoposteriorly; propodeum with dorsal area as long as posterior area; petiolar area somewhat rugosely sculptured.

Abdomen: Nearly twice as long as thorax; second tergite and third tergite at base more or less granular in sculpture; tergites beyond second coriaceous, with fine, scattered punctures; ovipositor about seven-eighths as long as abdomen.

Black or blackish, except mandibles (but not teeth) and malar space whitish; clypeus, front and middle legs (tibiae and tarsi a little infusate), hind coxae, trochanters, femora, ovipositor, tips of ovipositor sheaths, and spot on outer side of base of hind tibia, reddish.

Described from holotype female in U. S. National Museum Collection under Type No. 21394.

Type locality: Long. 141° W., lat. 69° 20' N. (evidently on the northern border between Alaska and Yukon Territory). Collected Aug. 4 to 8, 1912, by J. M. Jessup.

Eleven paratypes, two in the U. S. National Museum Collection, four in the Townes Collection, and five in the Canadian National Collection. Paratype localities: Alaska: Mount McKinley at 2,500 ft., Aug. 10, 1954, David Townes; Canada: Reindeer Depot, Mackenzie Delta, N. W. T., July 10, 1948, J. R. Vockeroth; Rampart House, Y. T., two specimens July 11 and 20, 1951, J. E. H. Martin; Norman Wells, N. W. T., two specimens June 29 and July 10, 1949, J. E. H. Martin; Fort Chimo, Que., Aug. 7, 1948, R. H. MacLeod; Great Whale River, Que., July 7, 1949, J. R. Vockeroth; United States: Fall River Pass, Rocky Mountain National Park, 11,600 ft.,

Colo., Aug. 12, 1948, H., G., and D. Townes; Poudre Lake, Rocky Mountain National Park, 11,000 ft., Colo., two specimens Aug. 12, 1948, H., G., and D. Townes.

Variation: The two specimens from Rampart House have the ventral surface of hind tibia extending from pale basal area to the apex, reddish; the front coxae and trochanters of all the specimens except type and two of the three from Colorado (these two have them more or less infuscate) are blackish; specimens vary from 7 mm. to 13 mm. in length; ovipositor sheaths vary from little more than half (one specimen from Norman Wells, N. W. T.) to fully as long as abdomen.

Two specimens from Alaska are placed here. One, from Naknek River, while possessing the blackish palpi, tegulae, and longer ovipositor sheaths, has a definite white streak on the hind tibia. The other, from Teller, Alaska, has the ovipositor barely one-half the length of the abdomen.

Host: Unknown.

Either this species or *novita* (Cresson), or both, may prove to be *Delomerista mandibularis* (Gravenhorst).⁷ Certainly *borealis* is the same as the specimens in the U. S. National Museum Collection identified as *mandibularis* by A. Roman, and also the same as those from G. Heinrich's collection and identified by him as *mandibularis* (Gravenhorst). However, Gravenhorst's original description states "postici tibiis basi summa fusca, annulo pallido, obsolete aut distinctiore, ante basin, apice, vel latere toto supero usque ad anulum pallidum, fusco, tarsi fuscis" which better describes the hind tibiae of *novita*. Many of the species Gravenhorst placed in *Pimpla* at that time possessed hind tibiae with a central pale area which circled the tibia completely, hence his stressing the fact that *mandibularis* had the upper surface and sides fuscous. Because the type specimen is unavailable to me and because Gravenhorst's description of the hind legs of *mandibularis* better fits *novita* I have described this Nearctic species as new.

6. *Delomerista pfankuchi* (Brauns)

FIGURE 313,p

[*Pimpla*] (*Delomerista*) *Pfankuchi* Brauns, 1905, Zeitschr. Syst. Hymen. Dipt., vol. 5, p. 131; ♀. Type: ♀, Bremen, Germany (Berlin).

This species, belonging to the *NOVITA* group, may not be present in the Nearctic region. The single specimen before me is from the A. D. Hopkins Collection and the label reads only "Accession No. 5928. A. D. Hopkins, W. Va." Whether the specimen came to Dr. Hopkins

⁷ Dr. Townes, who saw the ♀ type specimen of *D. mandibularis* on a European trip (made since this MS. was written), informs me that the ovipositor has a strong dorsal curve apically. Therefore *mandibularis* would fall in the *JAPONICA* group and may prove to be conspecific with *japonica* (= *diprionis*) as Uchida suggested.

from Europe or was taken in West Virginia I have been unable to ascertain. Nothing available under the accession number was pertinent.

While Brauns' original description is still diagnostic for the species, it should be mentioned that some of the characters given may or may not be present in each specimen of *pfankuchi*. The areolation of the propodeum which Brauns stressed shows as much or more intra-specific as interspecific variation. However, the color pattern and sculpture of the abdominal tergites are excellent characters for separating *pfankuchi* from other species of the *NOVITA* group. Variation in the degree of coloration of the light areas of the abdominal tergites has been noted. Brauns refers to these pale areas as white. In the two specimens before me these light areas are testaceous or castaneous rather than white. The pale area on the ventral side of the hind tibia is more or less broken by a fuscous area and varies with the specimens.

The distinguishing character for this species is the finely punctate sculpture of the abdominal tergites with the lack of any granulation and especially on tergites 1, 2, and 3. All other species of *Delomerista* known to me have some granulation on at least parts of the first two or three tergites.

7. *Delomerista novita* (Cresson)

FIGURES 313,o; 327,i

Pimpla novita Cresson, 1870, Trans. Amer. Ent. Soc., vol. 3, p. 145; ♀. Type: ♀, Massachusetts (Philadelphia).

Delomerista novita (Cresson) Cushman, 1925, Journ. Washington Acad. Sci., vol. 15, p. 392.

The definitive characters in Cresson's original description are color pattern and shape of ovipositor. The latter character does not separate *novita*, *mandibularis*, and *borealis*. As previously stated, I am not at all certain that more than one species is involved with the three names.^{7a} But since I have not seen the type of *mandibularis*, and since, on the basis of the material at hand, I can separate *novita* and *borealis* I have chosen to keep the three distinct at present.

D. novita varies in length from 6 to 13 mm., and the ovipositor sheaths from $\frac{2}{3}$ to approximately $\frac{6}{7}$ the length of abdomen. The following parts are white or whitish and of specific importance: Palpi; lateral membranous margins of abdominal tergites; tegulae; area of each dorsolateral posterior corner of pronotum extending farther anteriorly than ventrally; basal third of hind basitarsus; basal annulus and ventral surface of hind tibia extending at least two thirds of distance to apex.

Though specimens of the *NOVITA* complex from alpine areas are usually *borealis*, four specimens, two from Mount Rainier, Washington,

^{7a} See footnote on page 371.

at altitudes of 4,700 and 5,300 ft., one from Saskatoon, Saskatchewan, and one from Pipestone Pass, Montana, seem definitely to be *novita*. They possess all the whitish areas mentioned above except that on the hind basitarsus.

Distribution: Canada: British Columbia, Ontario, Quebec, Saskatchewan; United States: California, Connecticut, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New York, Virginia, Washington, West Virginia, Wisconsin.

Hosts: Sawfly larva in elder stem (collected by J. C. Bridwell in Vienna, Virginia); *Mononychus vulpeculus* (Fabricius); *Acrobasis rubrifasciella* Packard (= *Phycis rubrifasciella* (Packard)) (parasites reared by Dimmock and identified by Ashmead); *Exartema olivaceanum* Riley; *Eublemma minima* (Guenée) (= *Thalpochares carmelita* Morrison). The last two records are doubtful, as the collector and identifier are not given. Host records are so meager for this species that I make no effort to evaluate them further.

3. Genus *Pseudorhyssa*

FIGURE 300,b

Pseudorhyssa Merrill, 1915, Ann. Ent. Soc. America, vol. 41, p. 150. Type: *Pseudorhyssa sternata* Merrill = *ruficoxis* (Kriechbaumer); original designation.

Front wing 7 to 19 mm. long; body form elongate; apex of clypeus with a strong median point; propodeal carinae weak; tarsal claws simple, of moderate size, without an enlarged bristle with a spatulate tip; nervellus broken far above the middle; abdomen strongly mat, its hairs rather dense; ovipositor strongly compressed, slender, its apex not sinuate, its sheath about 1.9 as long as front wing.

This genus contains the European *Pseudorhyssa alpestris* (Holmgren), 1859, and the Holarctic species described below.

1. *Pseudorhyssa ruficoxis* (Kriechbaumer), new combination

"*Rhyssa approximator* (Fabricius)" of authors, not of Fabricius.

Rhyssa approximator var. *ruficoxis* Kriechbaumer, 1887, Ent. Nachr., vol. 13, p. 250; ♀. Type: ♀, between Beuerberg and St. Heinrich, Starnbergersee, Germany (Munich).

Pseudorhyssa sternata Merrill, 1915, Trans. Amer. Ent. Soc., vol. 41, p. 150; ♀. New synonymy. Type: ♀, Toronto, Ont. (Philadelphia).

Front wing 7 to 12.5 mm. long in male, 10 to 19 mm. long in female; first tergite about 1.95 as long as wide, its dorsal longitudinal carinae sharp on its basal $0.4 \pm$, continuing as blunt ridges to near its apical $0.7 \pm$; ovipositor sheath about 1.9 as long as front wing.

Male: Black. Face, under side of face and pedicel, obscure blotch on base of mandible, palpi, hind corner of pronotum, tegula, front